Model Railroad Photography

How to set up your camera and scene to get the best shot possible

Or

How not to make the mistakes I did.

My First Point and Shoot

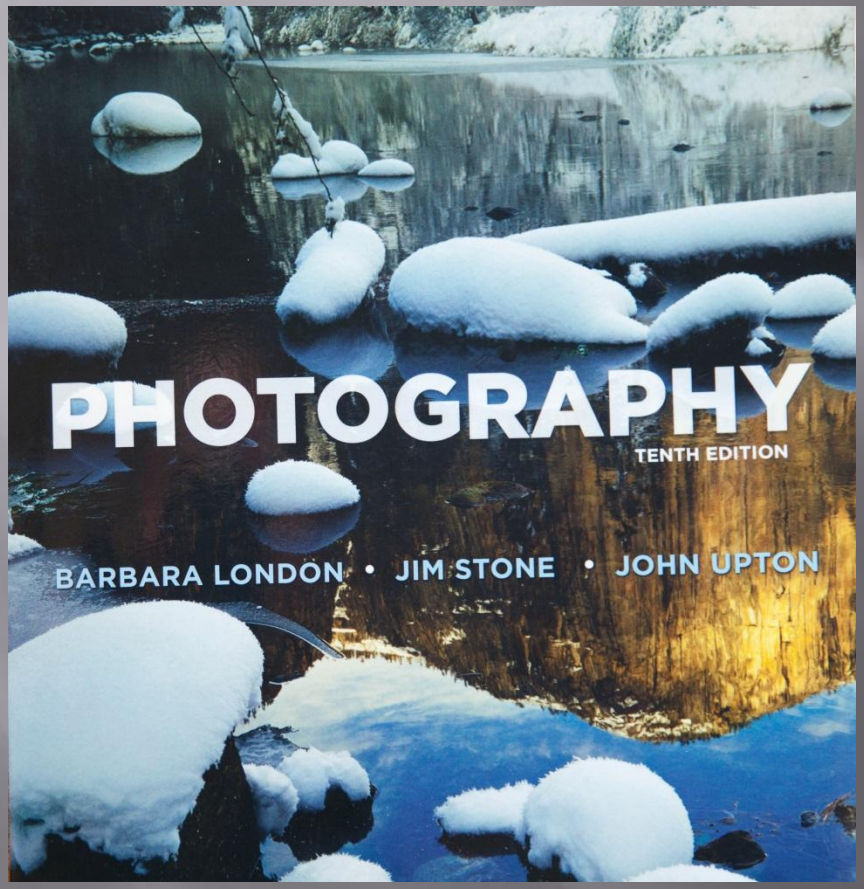
Obisonia Station on The East Broad Top Railroad

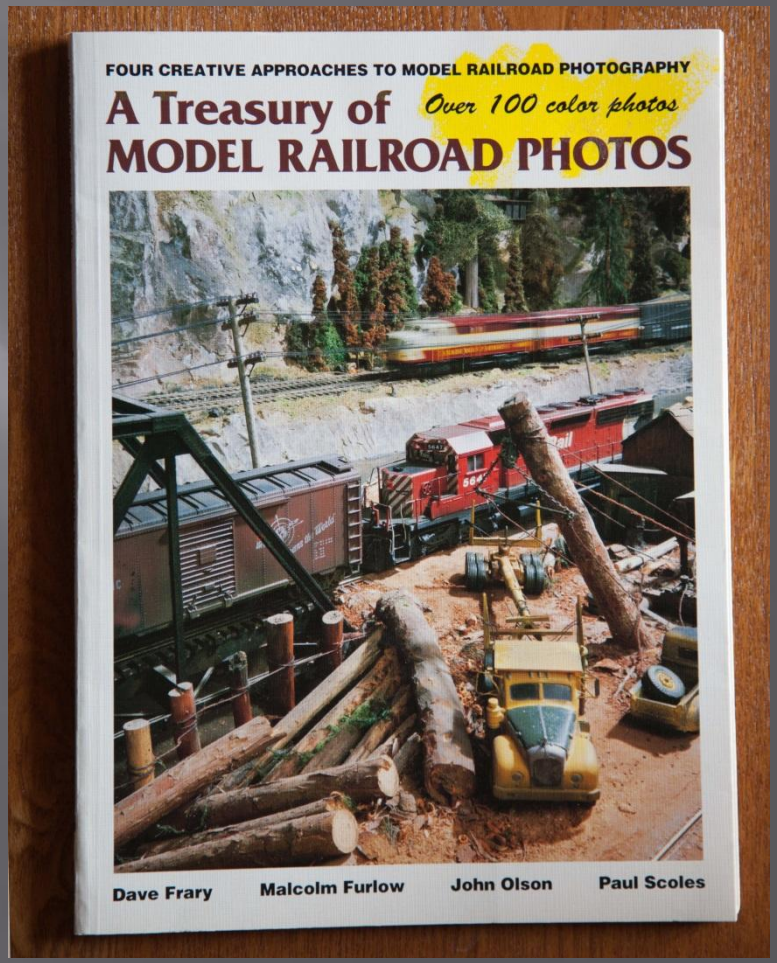
ISO 400,1/4s @ f8

Texas Western

Software
composite of
eighteen shots
Photo by Roy Stockard

Photography by London Stone Upton
&
Model Railroad Photos

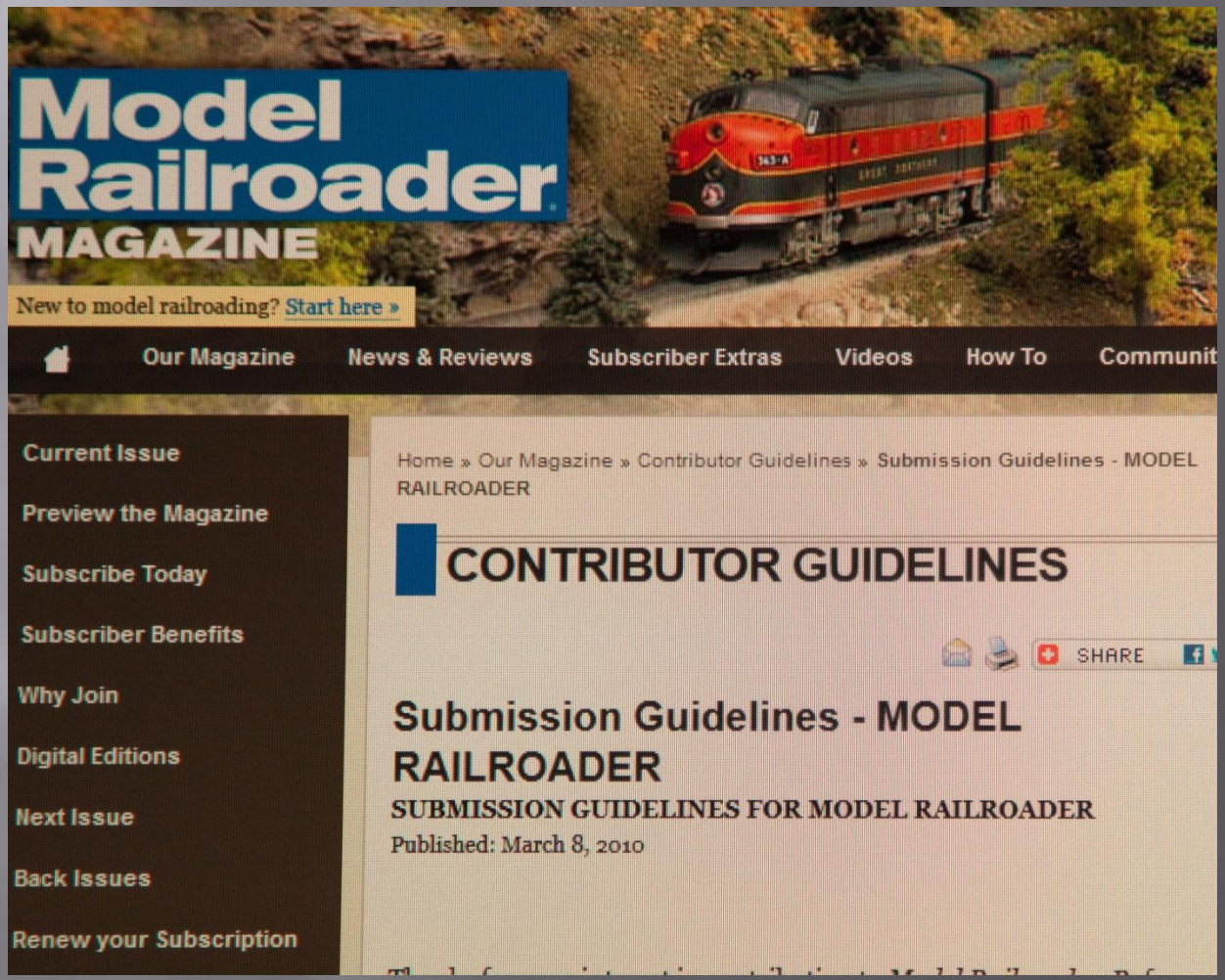




NMRA Magazine

Articles by M. R. Snell
January, February and March 2013

Model Railroader



http://mrr.trains.com/sitecore/content/home/magazine/contributor-guidelines/2010/03/submission-guidelines---model-railroader.

Brook Stover MR's Guidelines

A MODEL RAILROADER'S GUIDE TO DIGITAL PHOTOGRAPHY

By Brooks Stover, MMR

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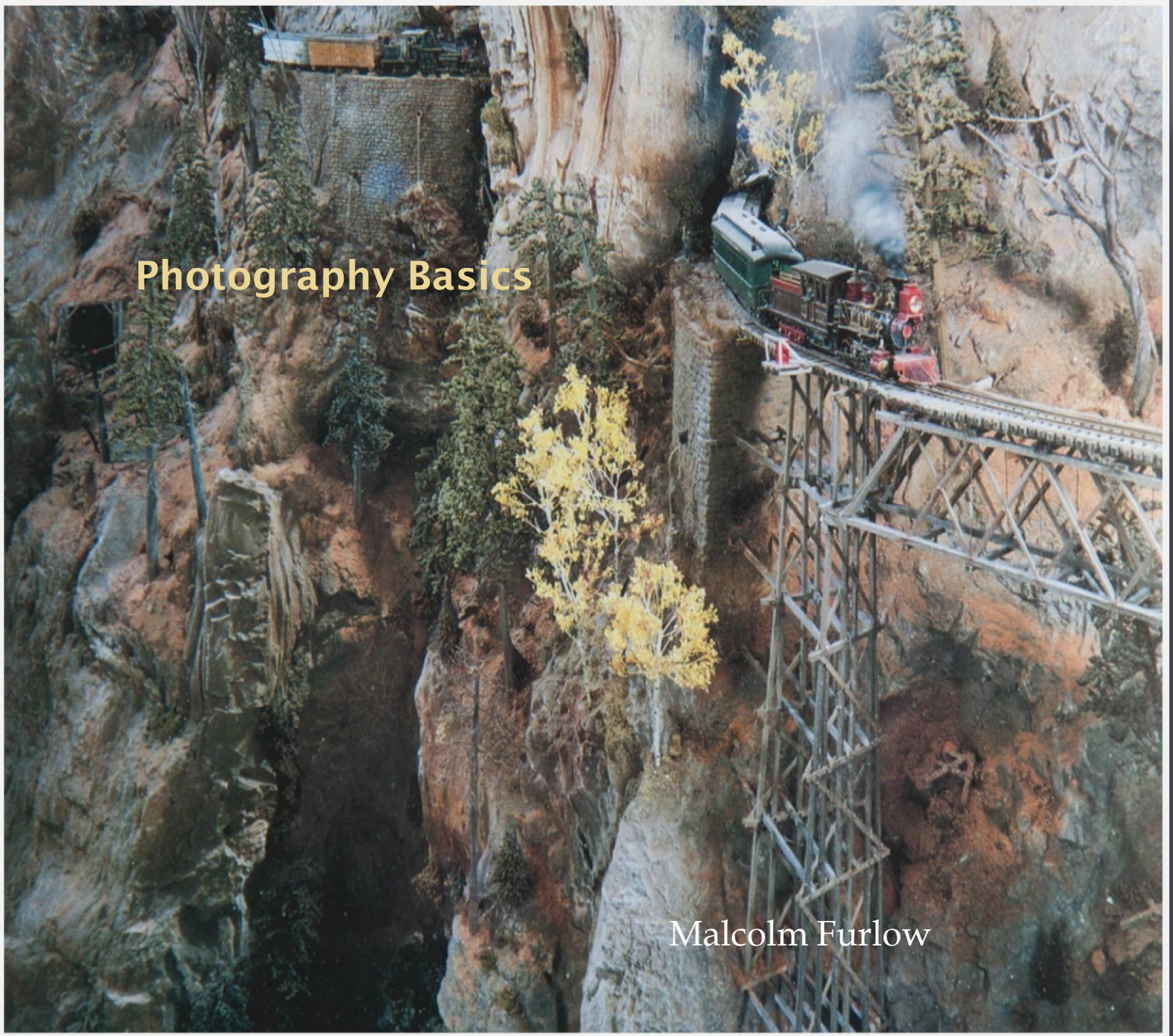
Crew members talk among themselves as final preparations are made on BC&G #14. The train will soon depart from Widen on a clear summer day in WV.

What I will Cover

- Photography Basics
- Camera Settings
- Creating the Scene
- Lighting Placement
- Metering the Scene
- Equipment to Accomplish All
- Focus Software


Photography Basics
Malcolm Furlow

Controlling Depth of Field Three Things

1. Aperture (f-stop)

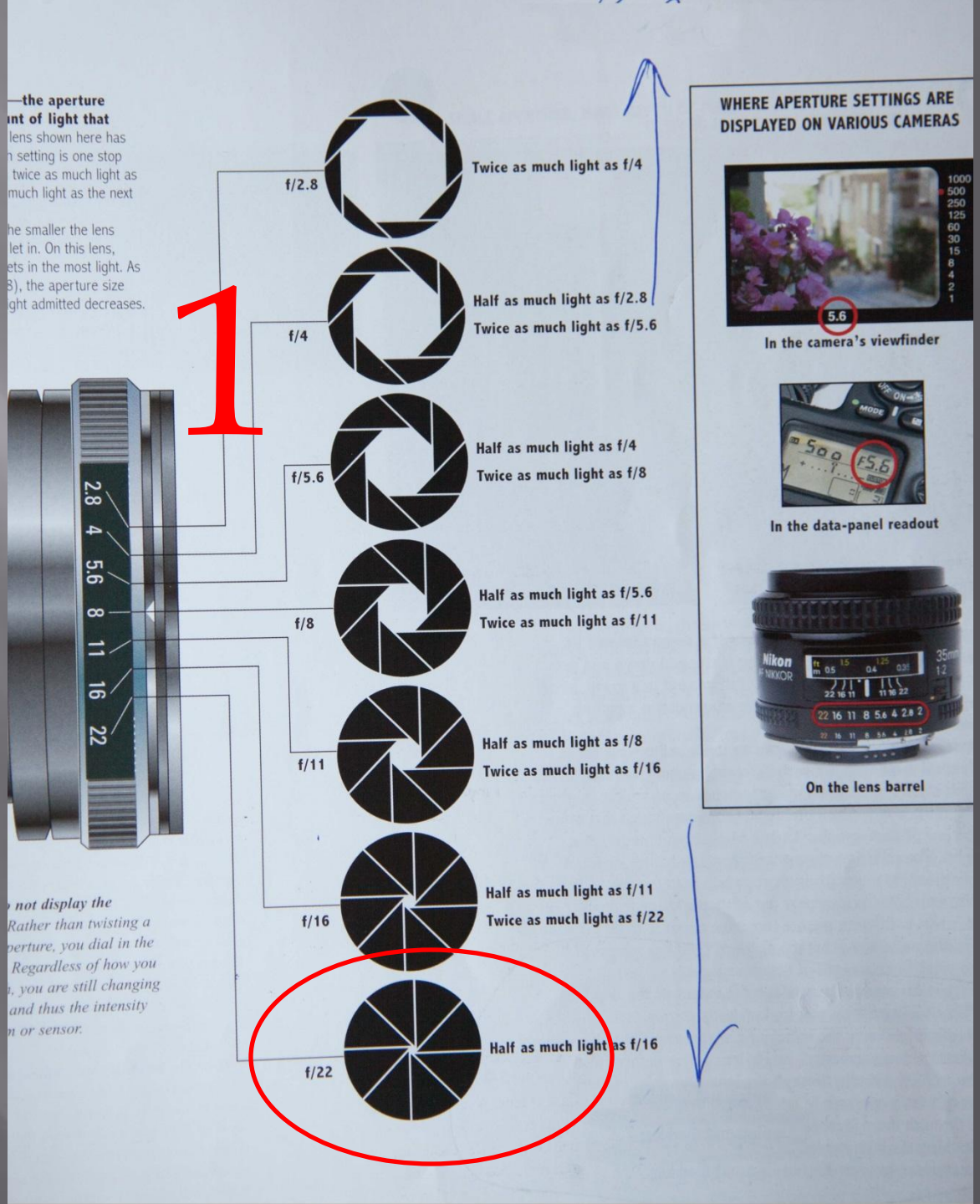
2. Focal Length (zoom)

3. Closeness (of Lens) to the Subject

Aperture

- The numbers are like wire gage – the higher the number the smaller the wire.
- The higher the number – the smaller the opening and the less light will be allowed in at a given time length.
- F-22 because it is so small takes 6 doublings of time to be able to allow the amount of light @ f-2.8
- Remember the Texas Western shot was at f-8 at 1/4s.
- At the same ISO, an equivalent meter reading would be f-22 at 2 seconds.
- In other words, 3 times smaller opening requires 3 times more TIME to allow the same amount of light to reach the sensor.
- F-22 or smaller number is what we are looking for --- why???

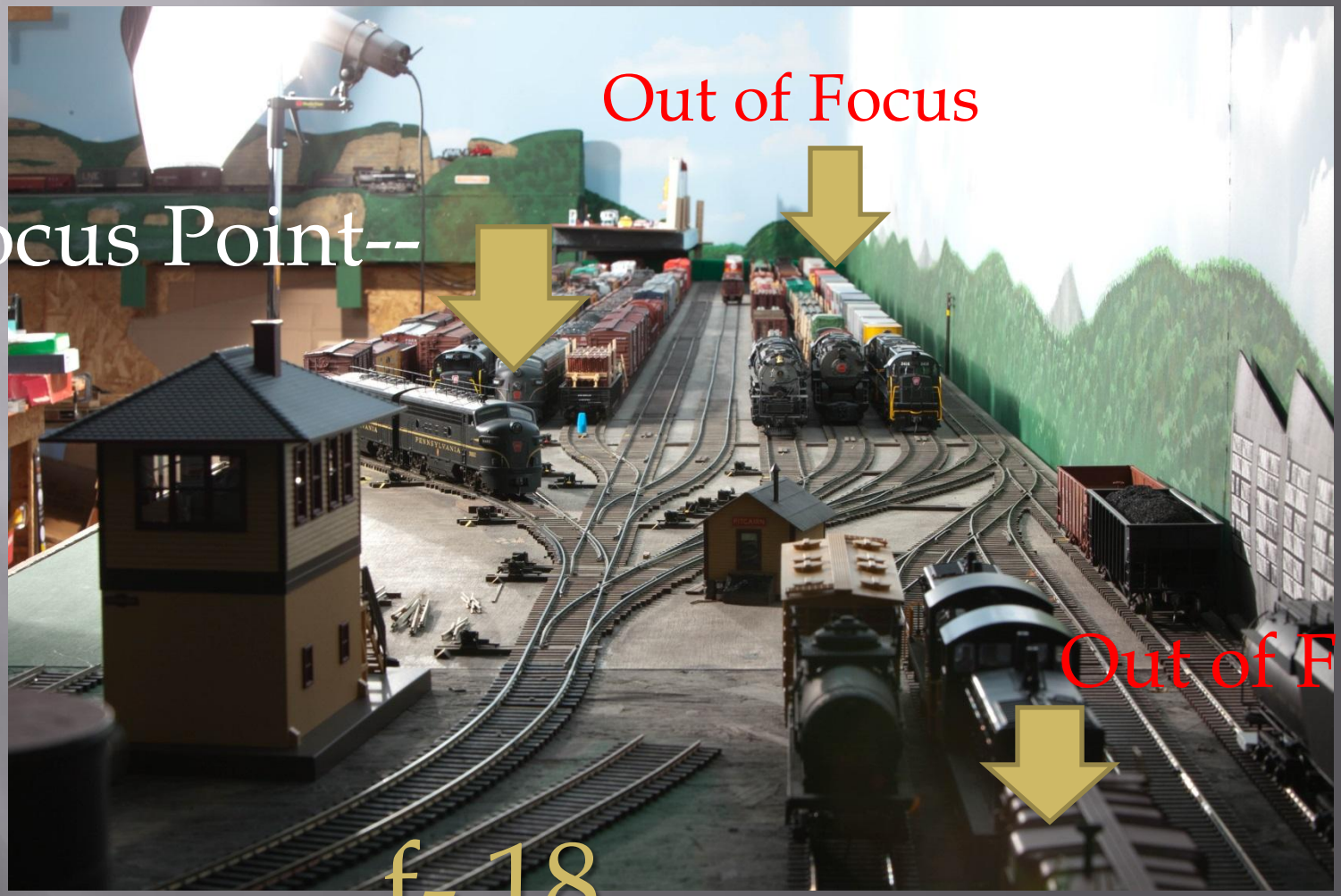
"DOF"


f/2.8
Twice as much light as f/4
f/4
Half as much light as f/2.8
Twice as much light as f/5.6
f/5.6
Half as much light as f/4
Twice as much light as f/8
f/8
Half as much light as f/5.6
Twice as much light as f/11
f/11
Half as much light as f/8
Twice as much light as f/16
f/16
Half as much light as f/11
Twice as much light as f/22
f/22
Half as much light as f/16
1
2.8 4 5.6 8 11 16 22
WHERE APERTURE SETTINGS ARE DISPLAYED ON VARIOUS CAMERAS
In the camera's viewfinder
In the data-panel readout
On the lens barrel

Aperture of f-8

Photo by Roy Stockard

Aperture (f-stop) effects DOF



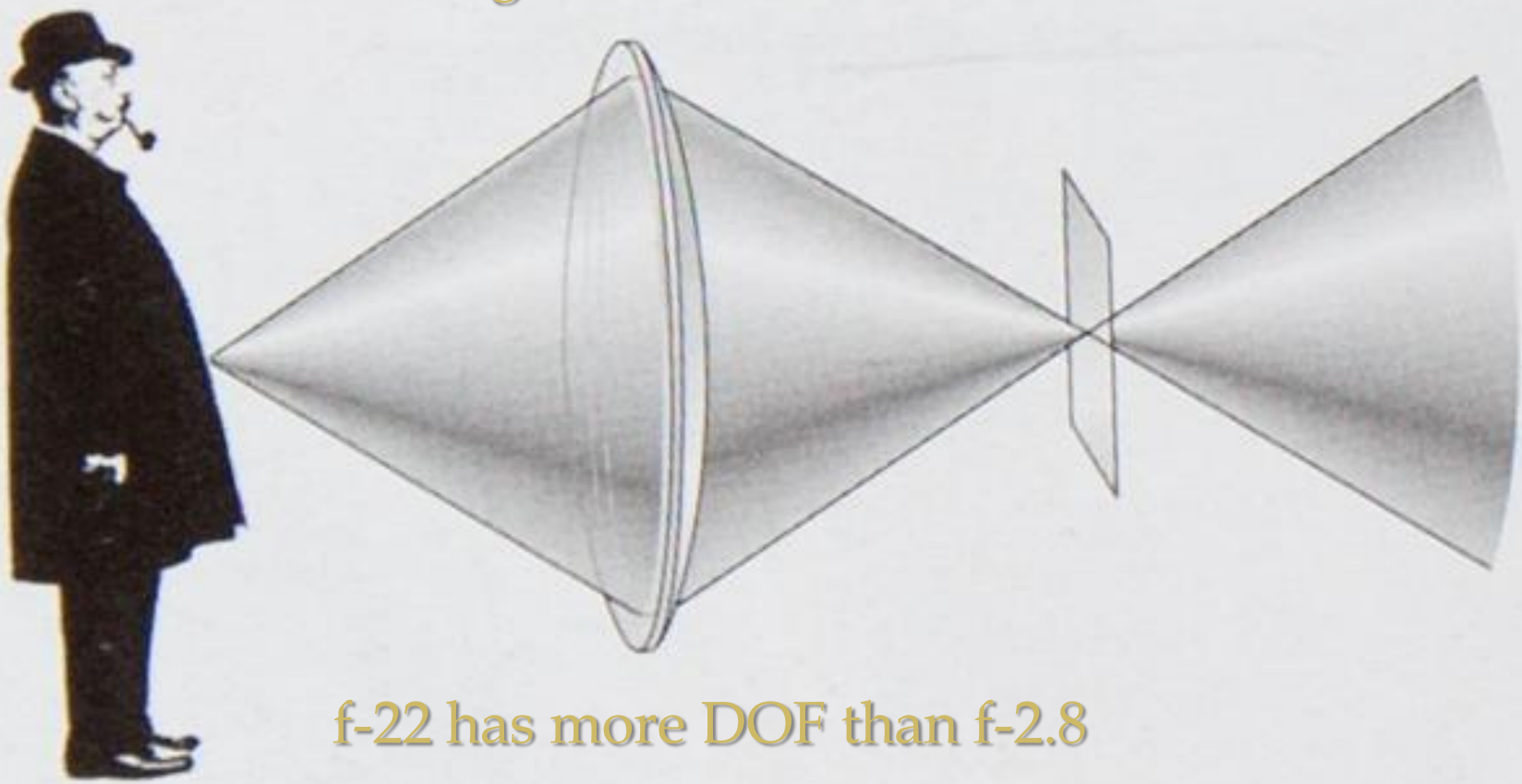
f-18

Depth of Field
@f-18 aperture
First shot of 10
Focus Point--
Is really a cone
At all aperture settings

cone. Behind the lens, ...

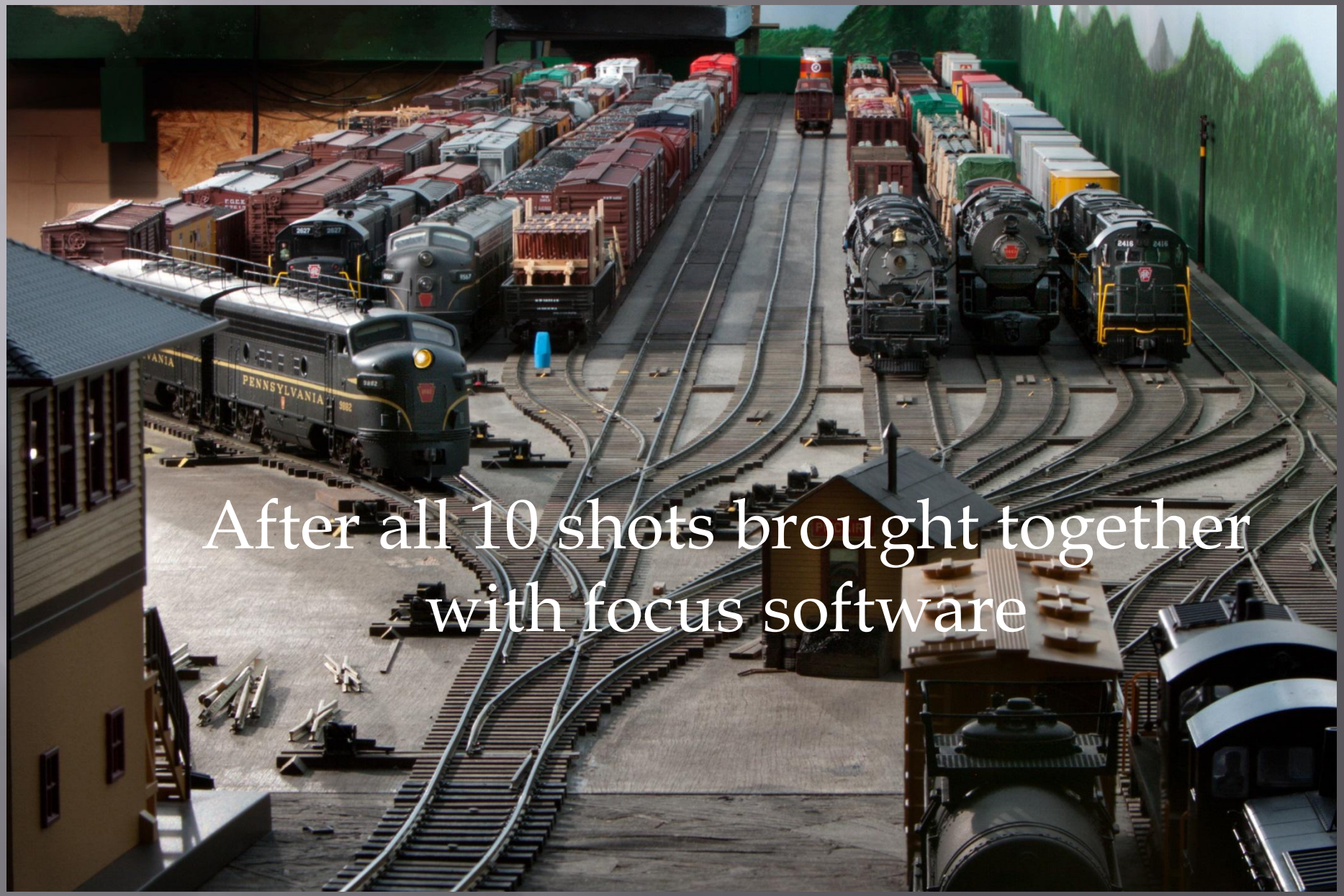
, again in the shape of a ... (see diagram, below).

The smaller the aperture, the greater the DOF



f-22 has more DOF than f-2.8

is not at the tip of the ... can't see that it's a circ



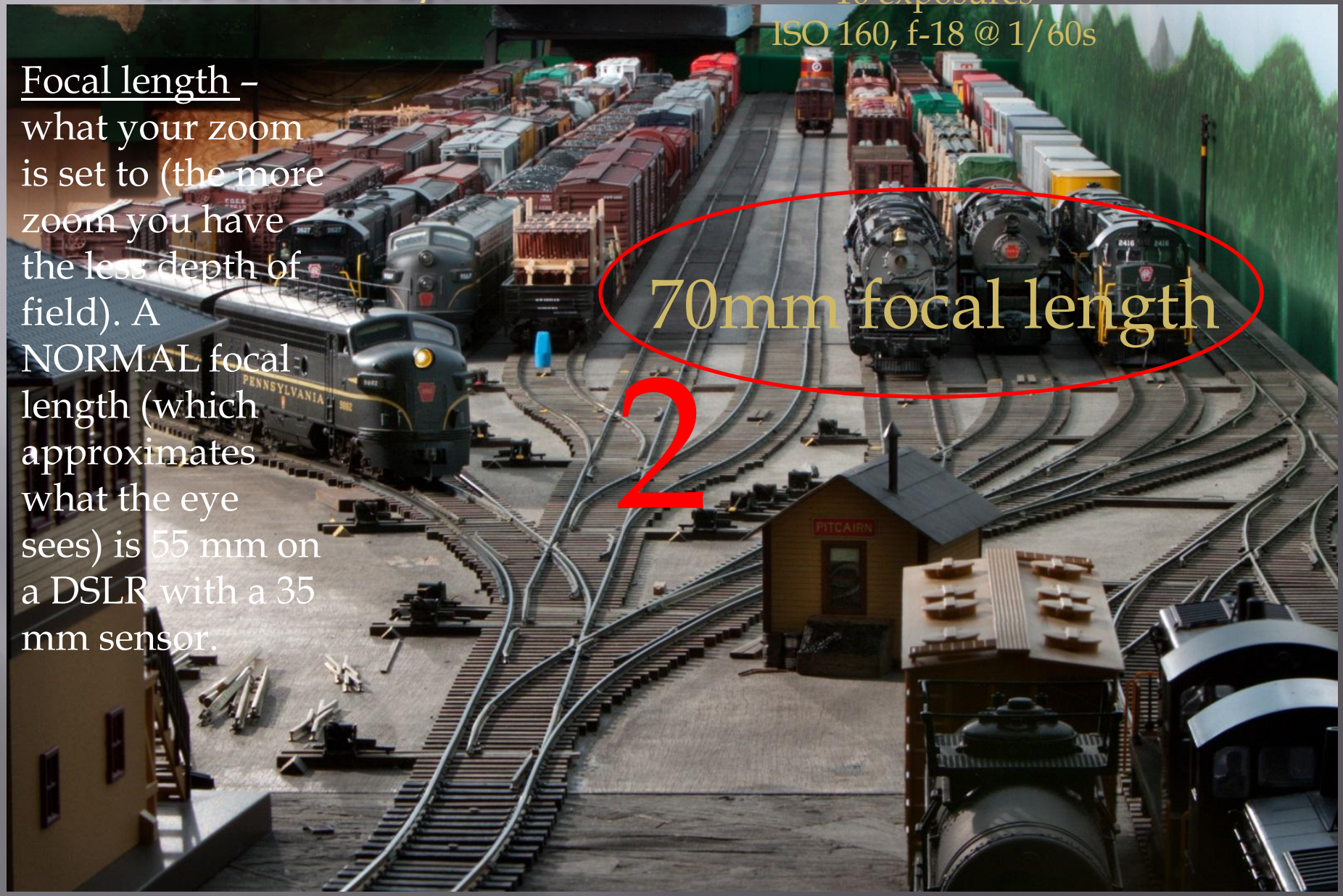
After all 10 shots brought together with focus software

Depth of Field

also effected by:

Brady McGuire's O Scale
10 exposures
ISO 160, f-18 @ 1/60s

1. Focal length – what your zoom is set to (the more zoom you have the less depth of field). A NORMAL focal length (which approximates what the eye sees) is 55 mm on a DSLR with a 35 mm sensor.



Focal Length of 50-55 mm

50 mm

ngth

y lenses differ is in use the camera you se can be used with you can also uy or use. A lens is s of its focal length h lens) or its rela- al, long, or short). h is the distance nodal point and the en the lens is oretically, infinity is y far away, beyond e. In photographic ance from which parallel rays. Lens e point where those focal point.

magnification, the d by the lens. The ter the size of e diagrams, right).

trols angle of view, e shown on a given see photographs -length lens forms ject than a short given size of sensor ncludes less of the ct appears. If you r thumb and fore- to your eye, you ne in front of a short lens. If rther from your longer lens—the aller part of ecreased the ugh your fingers. nger the focal angle of view seen

Focal length is the distance between the lens's rear nodal point and the focal plane when the lens is focused at infinity

Focal length 25mm

Rear Nodal Point

Image Plane

image plane

A lens of short focal length bends light sharply. The rays of light focus close behind the lens and form a small image of the subject.

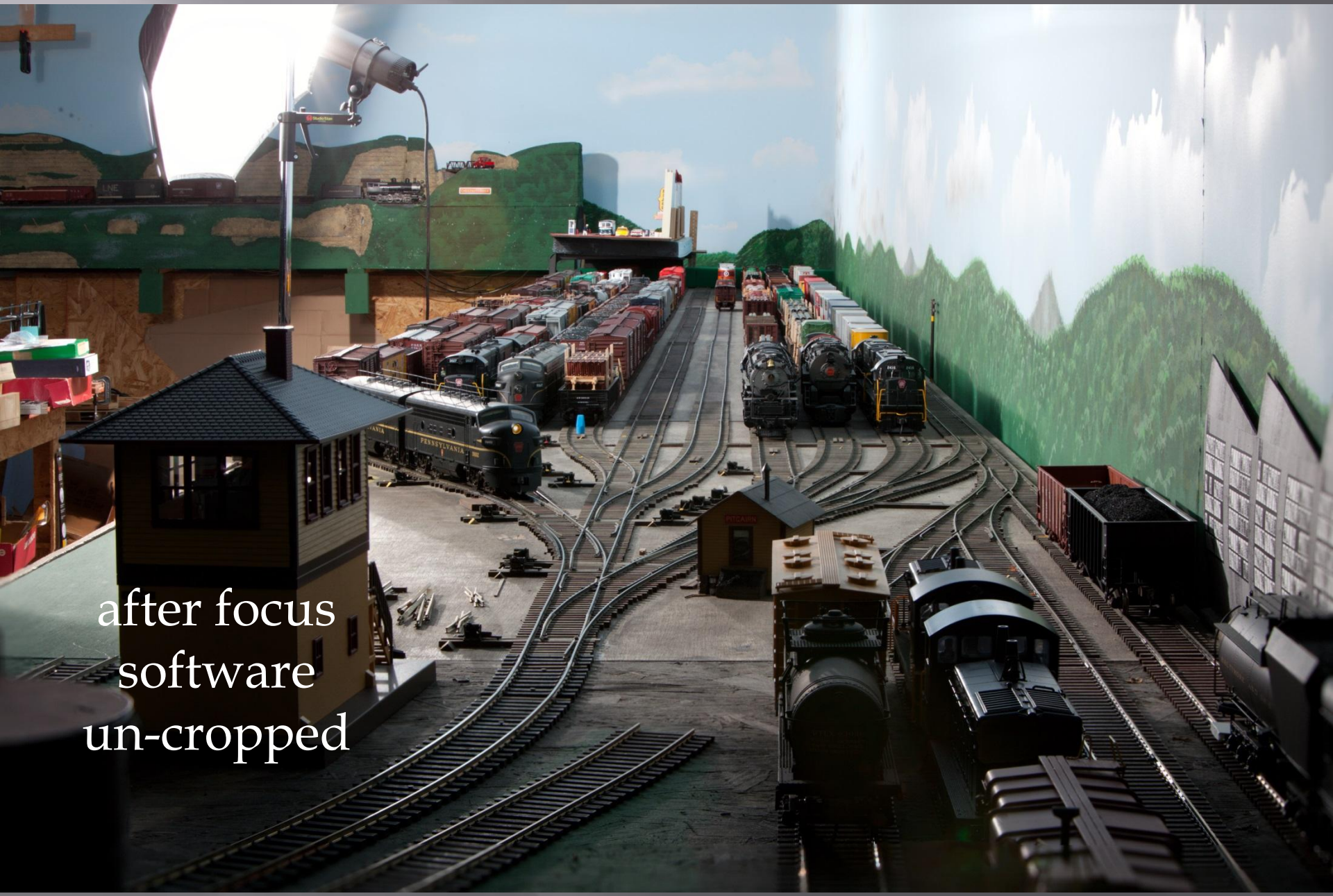
1) Size
2) Angle of View

The longer the focal length the greater the size of the object in the image.

Focal length 50mm

Image Plane

A lens of longer focal length bends light rays less than a short lens does. The longer the focal length, the less the rays are bent, the farther behind the lens the image is focused, and the more the image is magnified. The size of the image increases in proportion to the focal length. If the subject remains at the same distance from the lens, the image formed by a 50mm lens will be twice as big as that from a 25mm lens.

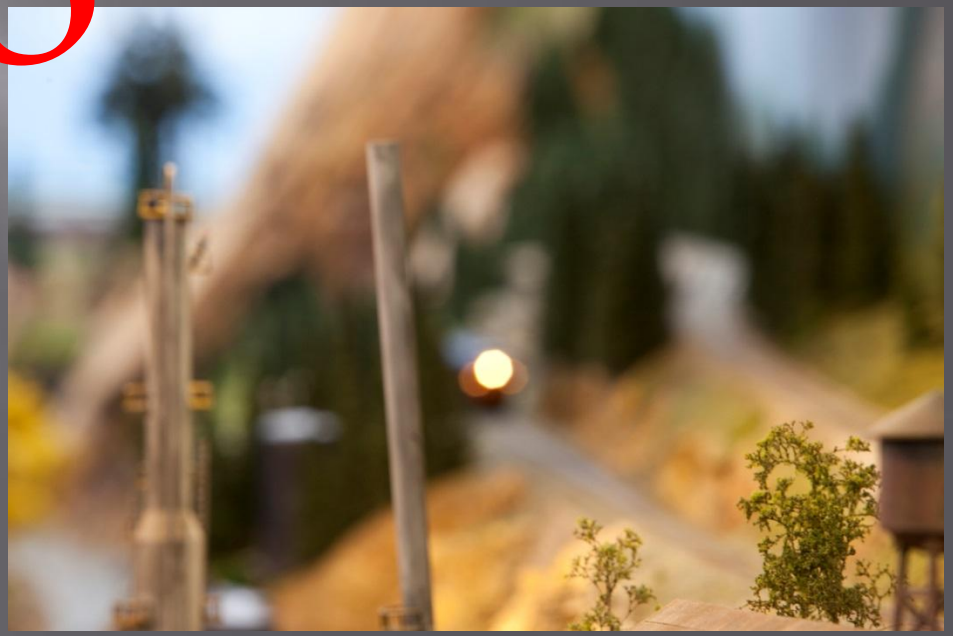

after focus
software
un-cropped

The last thing to effect DOF is closeness of the barrel of the lens to the subject

FOCUSED

3

LAST OF 18



Review
(How to achieve greatest DOF)

1. f-stop as high as possible:
   that is, f-22 or higher in number (smallest aperture available)

2. Use as close to a NORMAL focal length as possible:
   that is, close to 55 mm (what the eye sees in real life).

3. Remember, the closer your lens is to the subject, the more the Depth of Field is reduced.

Where are We? DOF is Set:

1. f-22
2. zoom setting close to 55 mm
3. Check --- closeness of the subject to the lens barrel.

Now What? ISO!

Set the ISO at 100 or lower if you can.

This will give you the sharpest image versus using a higher setting which will cause more grain to appear in the final photo.

Creating the Scene

- Try to shoot from as low as possible to create a VIEW which seems close to real life height --- as if you were standing by the rails.

- If you are shooting from a low angle, consider what you will do with the ceiling corners above you backdrop and such things as light fixtures.

- If you have fascia, consider building a temporary terrain covering that make the scene more believable. In the end it may be more believable and more creative than Photoshop work.

Ceiling Corners

CEILING ABOUT BACKDROP

SKY ADDED IN PLACE

Jack Walton

Rio Grande
D&RGW
3066

Option: Replacement Sky
Shoot Backdrop from other area of layout

Using PassPort Color Checker

Place Background over Ceiling Corners

BEFORE

AFTER

Rio Grande
DENVER & RIO GRANDE WESTERN
268

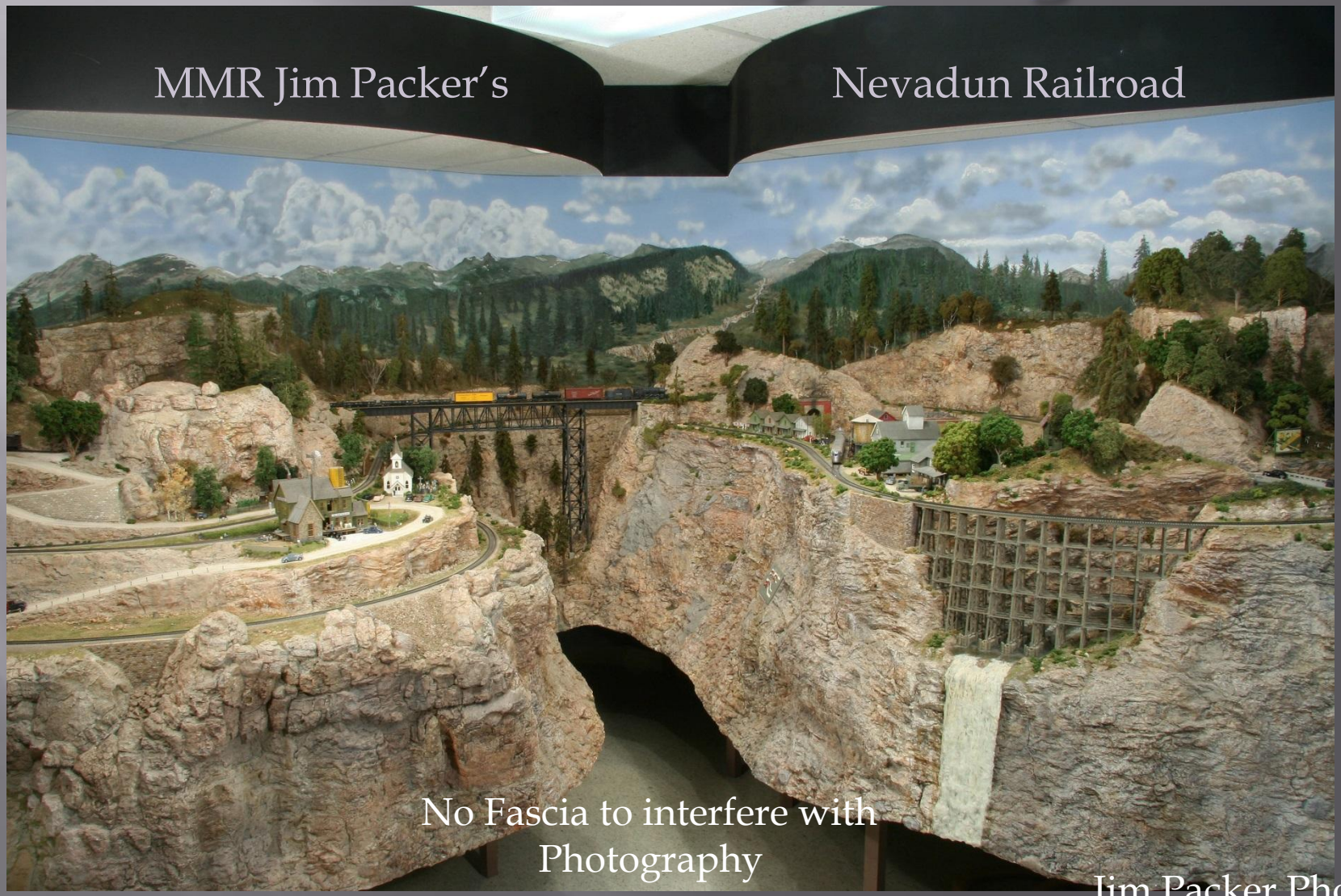
Fascia and Ceiling Corner

FASCIA & CEILING

REPLACED

Jack Orr's Raton and Overland

Examples of Creating the Scene from the Beginning



Jim Packer Photo

Compositional Elements

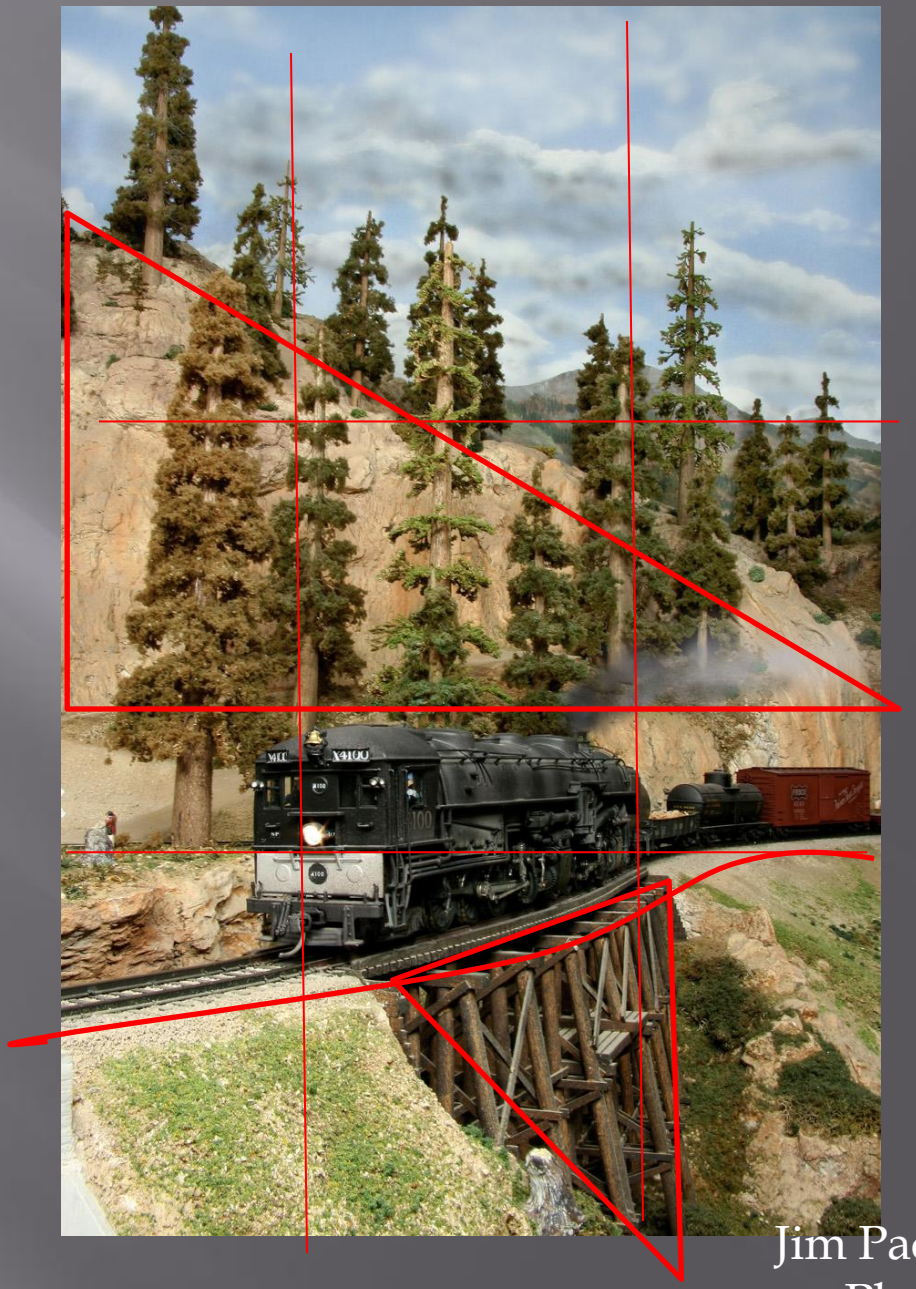
- Diagonal Lines
- Triangles

Jim Packer Photo

Photo Courtesy of Jim Packer, MMR published in Scale Rails (NMRA Magazine) and in Railroad Model Craftsman.

Jim Packer Cover Photo

- Triangles
- "S" Curves
- Rule of Thirds

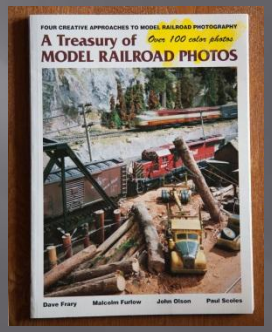


Jim Packer Photo

Lighting the Scene

- The lighting should be bright, of only one color temperature (incandescent, fluorescent, daylight photo floods, etc.) and be placed in order to create a little shadow to create a 3 dimensional image effect.

- A Treasury of Model Railroad Photos, too, has great ideas for light placement.



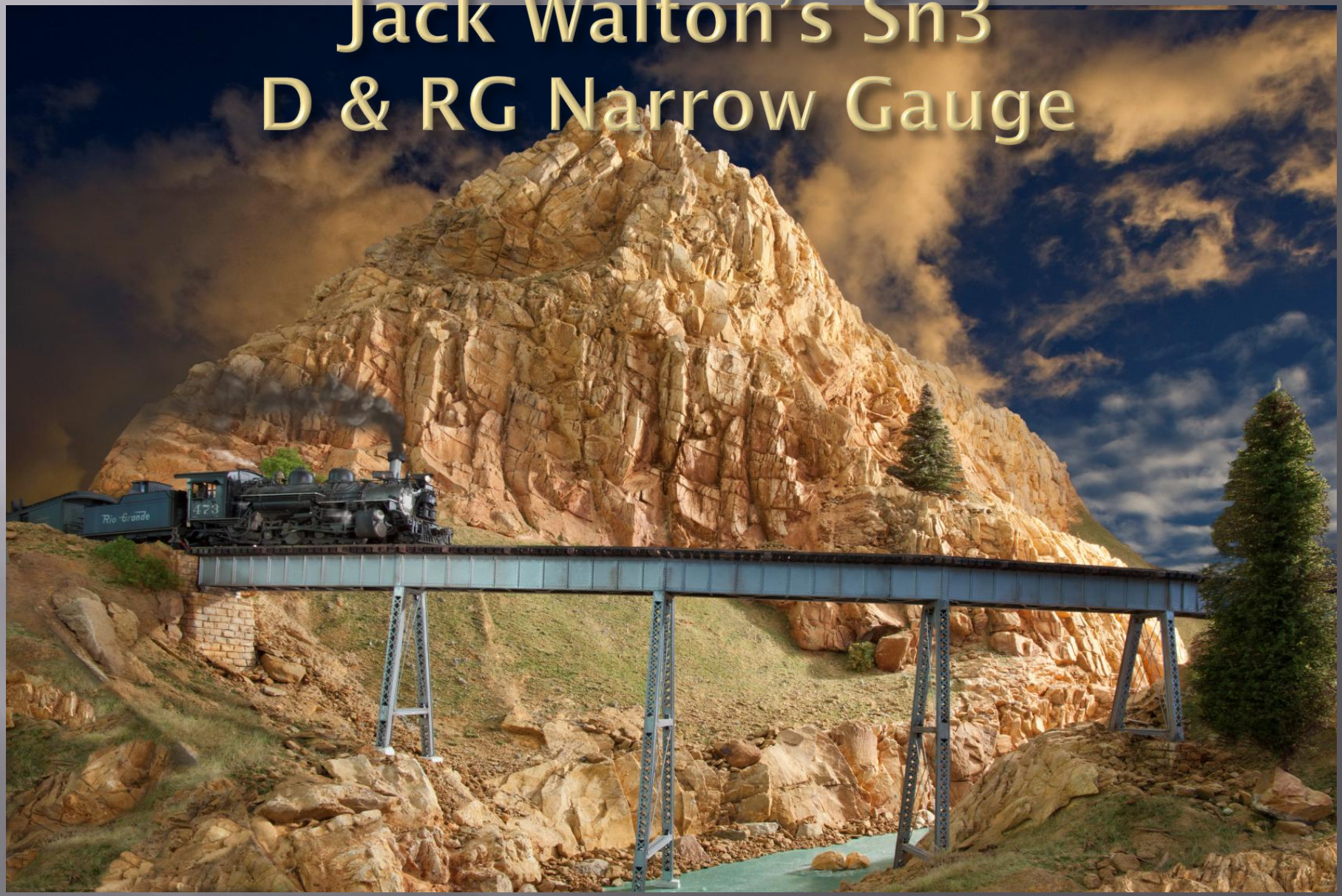
previously referred

- Bounce off ceiling (mid-day), aim directly into scene at low angle (early morning or late afternoon) or choose an angle in between.

Home Studio Lighting Kit

2 daylight fluorescent lamps, 2 stands, 2 soft boxes,
Constant lighting

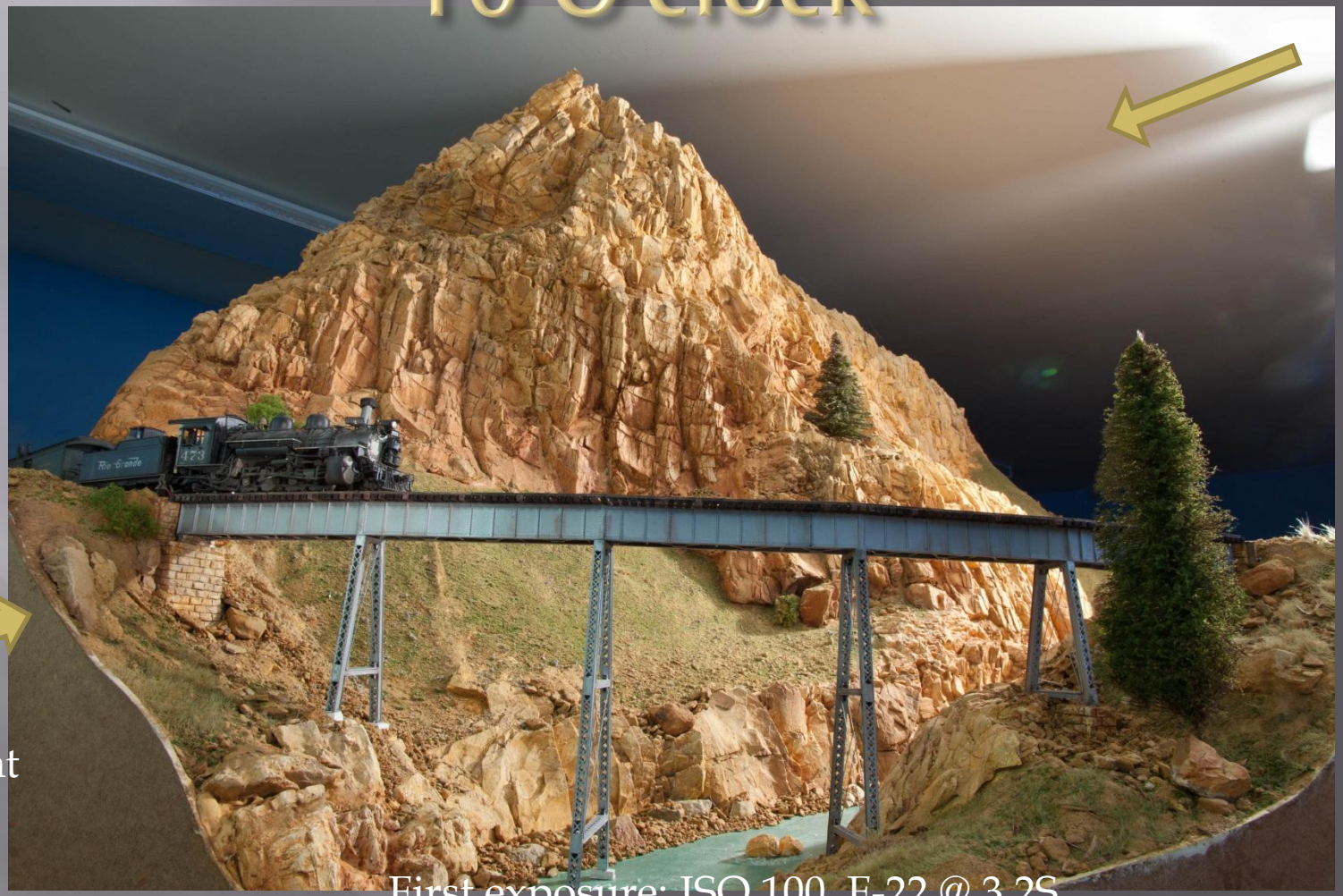
Jack Walton's Sn3
D & RG Narrow Gauge



15 exposures, 3.2s @ f-22, ISO 100

Incandescent Lamp
10 O'clock

Main Light



Fill Light

First exposure: ISO 100, F-22 @ 3.2S
(COLOR corrected in camera by selecting incandescent white balance)

Lighting Placement

24MM FOCAL LENGTH
INTRODUCED PERSPECTIVE ISSUE

PERSPECTIVE CORRECTED IN PHOTOSHOP, MORNING SKY REPLACED CEILING AND FASCIA REPLACED, SMOKE ADDED.

Did that say 3.2 seconds??

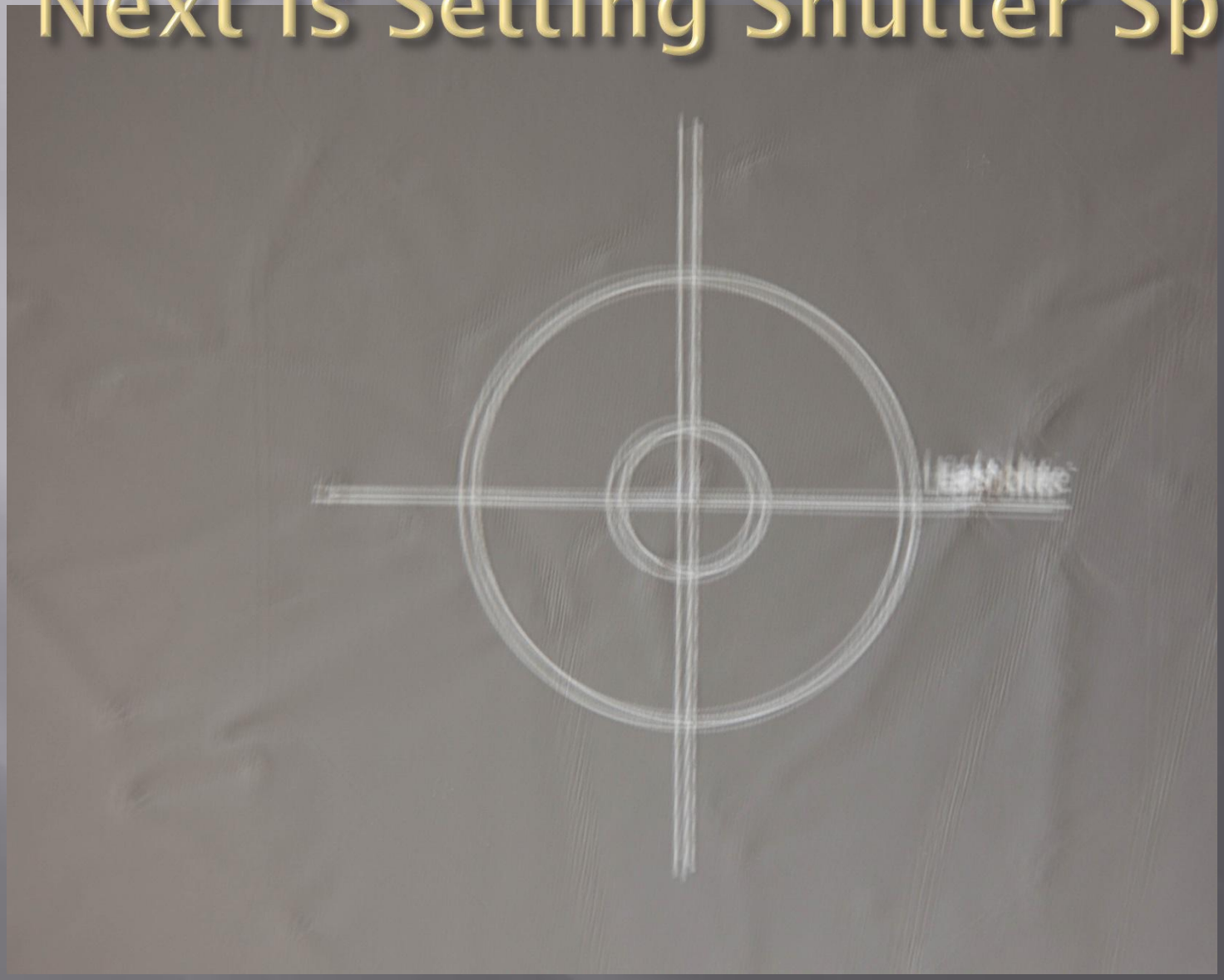
YES

The smaller the opening (aperture) the longer it takes to allow the necessary light to hit the camera sensor (or film? --- who uses that?)

Equipment Needed

Tripod & Cable Release

Next is Setting Shutter Speed



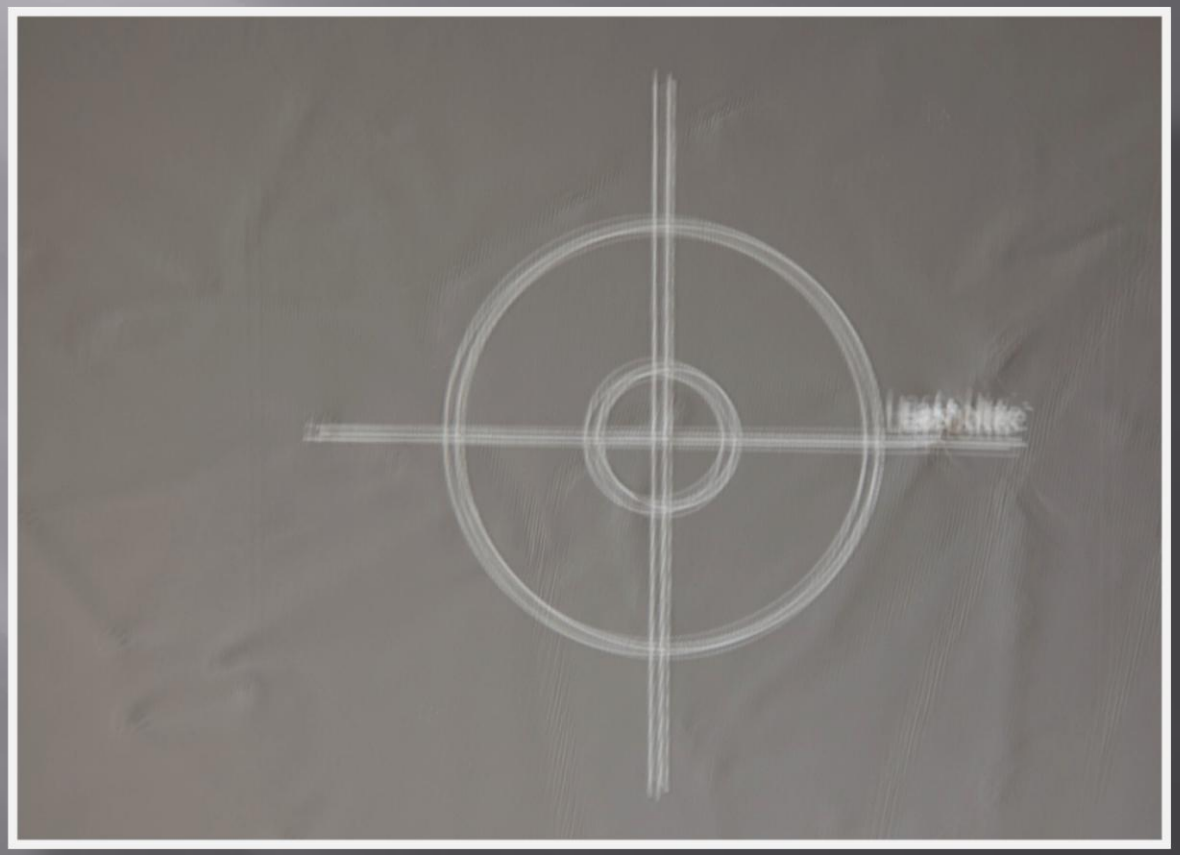
White / Gray Card

Gray Card Use

1. Place Card in front of camera
2. Oriented parallel to the sensor plane
3. After lighting established, place so existing and added lighting falls on the card.
4. Move your camera in and fill the screen with the gray card.

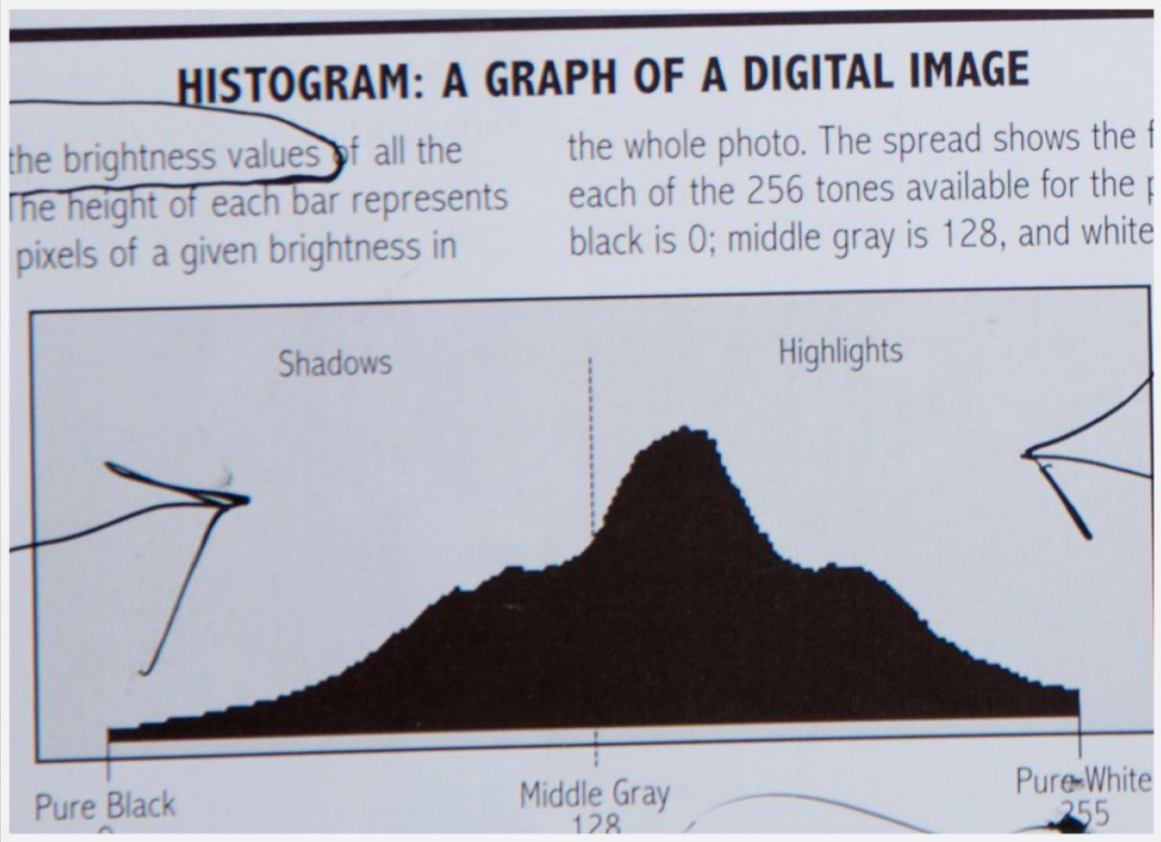
This is what you should see when you meter the Gray Card

The target is just to allow focusing (if auto-focus is on)



Gray Card Histogram

Fill the lens with the card, read the meter and expose.
Check the Histogram


HISTOGRAM: A GRAPH OF A DIGITAL IMAGE
the brightness values of all the
The height of each bar represents
pixels of a given brightness in
the whole photo. The spread shows the f
each of the 256 tones available for the p
black is 0; middle gray is 128, and white
Shadows
Highlights
Pure Black
Middle Gray
128
Pure White
255

Review

- ISO set at 100
- White Balance set to lighting available (incandescent, fluorescent, daylight, cloudy, etc.)
- Manually set f-22 or better for my f-stop
- Fill the view finder with the Gray Card
- As you look through view finder, adjust shutter speed to bring the exposure needles to center.
- Check the histogram and adjust shutter speed faster or slower to put spike in the center of histogram.

White Balance

- A White Card is used to fine tune your white balance which adjusts for color temperature of your lighting --- removes color cast or tint.
- One photo with white card in the scene is desired by Model Railroader Magazine to make sure color is correct (see Stover's guidelines).

Using the White Card

IMAGE HAS GREEN TINT

CORRECTED TO DAYLIGHT

Photoshop & Photoshop Elements have white balance eye droppers to click on this white panel to set the correct color of your scene.

Brady McGuire's O Scale PRR Laurel Valley Secondary Division

What did we cover in this clinic

(All Discussion aims toward use of focusing software)

1. Basic Photography – Depth of Field
2. Camera Settings
   - F22 --- best DOF
   - Select Focal Length --- (Zoom)
   - ISO 100
   - Camera White Balance Set
   - Manually set shutter speed based on Gray Card
3. Compositional Elements used in the Image
4. Lighting
   - Built-in Flash --- off
   - Use one kind of lighting – incandescent, etc.
   - Light the area as evenly as possible –especially backdrop
   - Create some shadow for depth in the main subject.
5. Equipment
   - Tripod
   - Cable Release
   - Gray Card/White Card
6. Gray / White Card – use
7. Use of Focusing Software